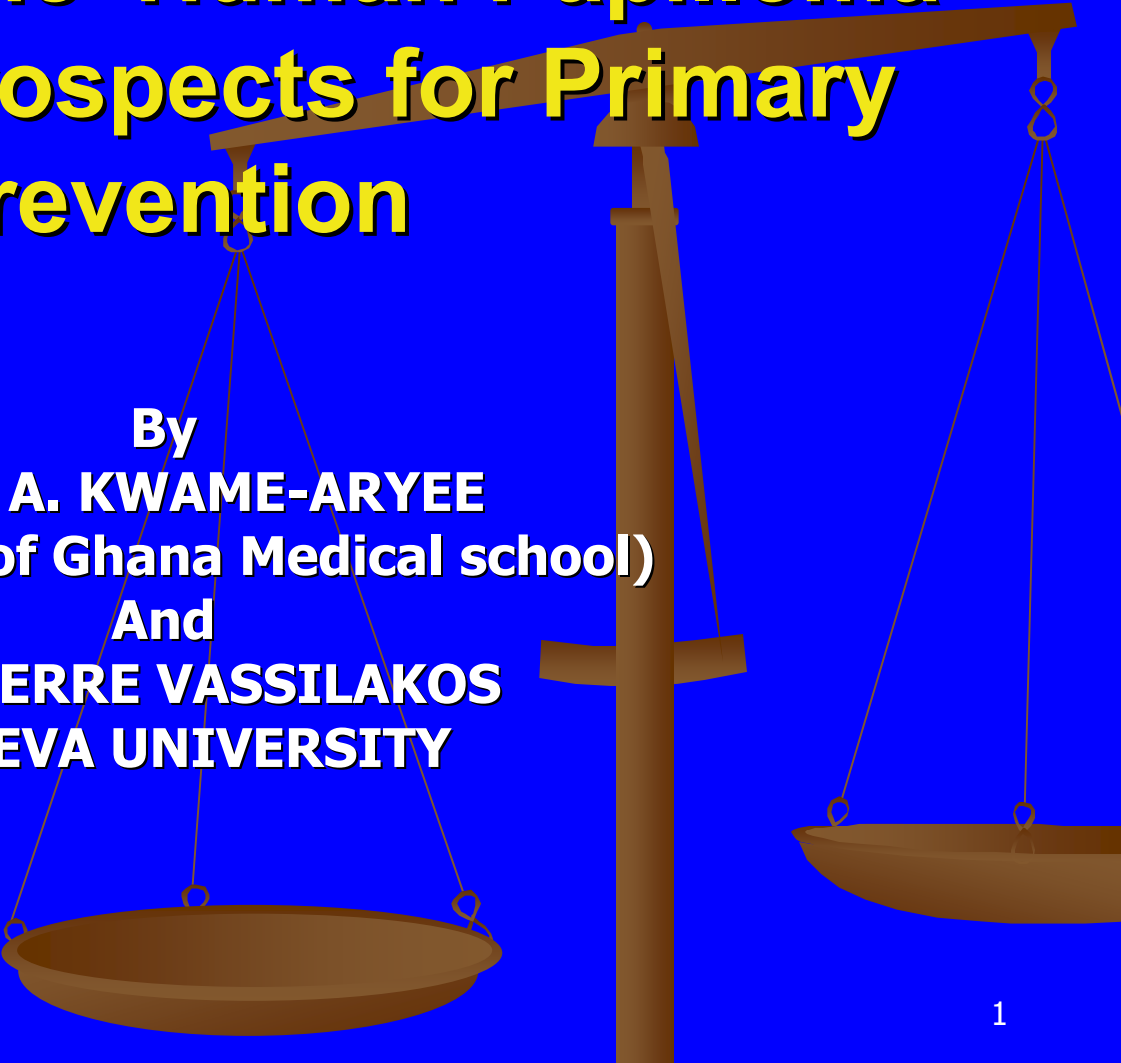


CERVICAL CARCINOMA

The Role of the Human Papilloma Virus and Prospects for Primary Prevention



By
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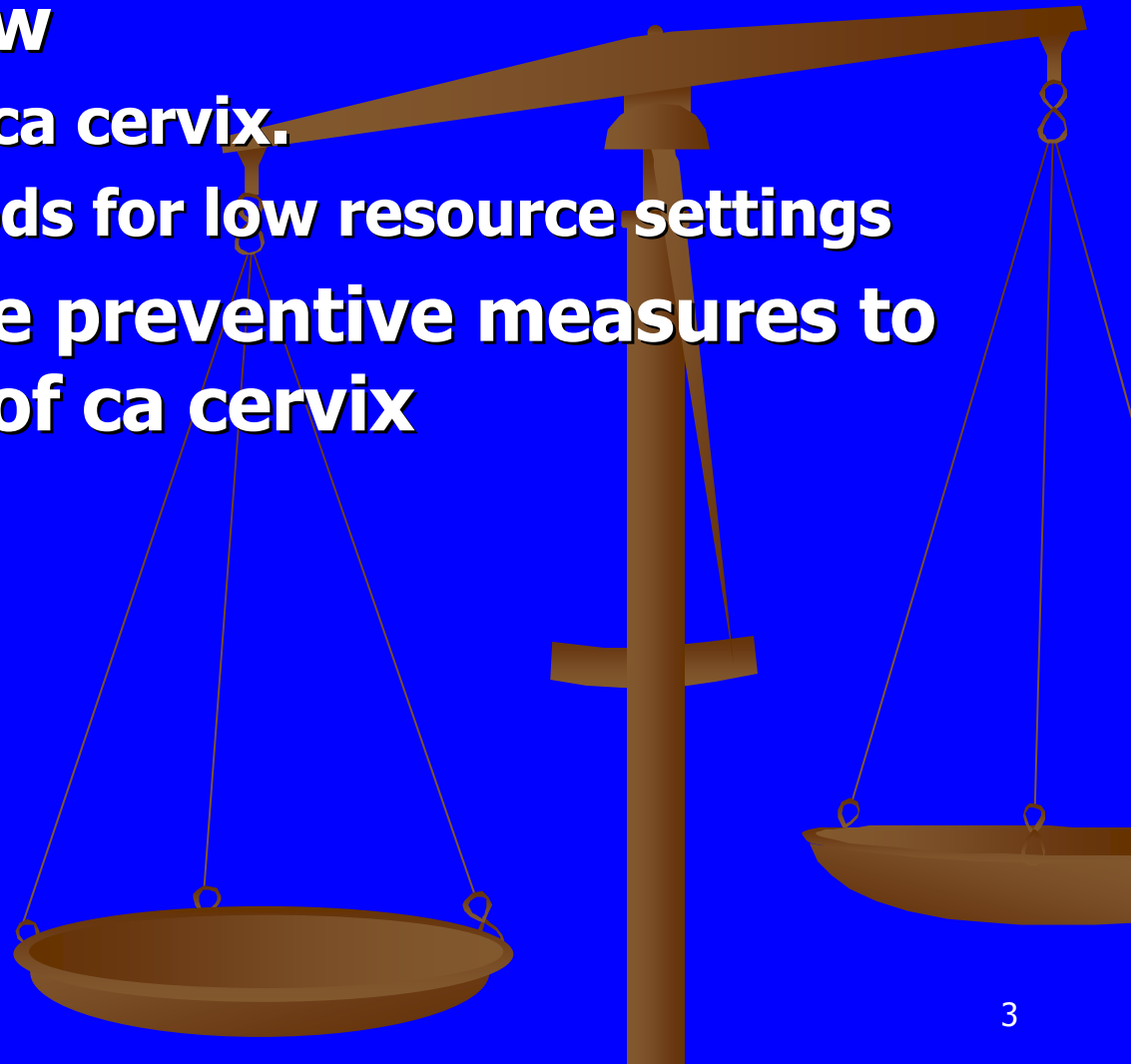
MAGNITUDE OF THE PROBLEM

- carcinoma (ca) of the cervix is the 2nd commonest female cancer in the world
- it is the commonest cancer in developing countries
- 500,000 new cases annually
- 75-80% in developing countries
- about 300,000 deaths annually
 - 80% are from developing countries.
- screening in developed countries has reduced cervical cancer death by 70%



OBJECTIVES

- **Literature review**
 - on aetiology of ca cervix.
 - available methods for low resource settings
- **Identify possible preventive measures to reduce the risk of ca cervix**



METHODOLOGY

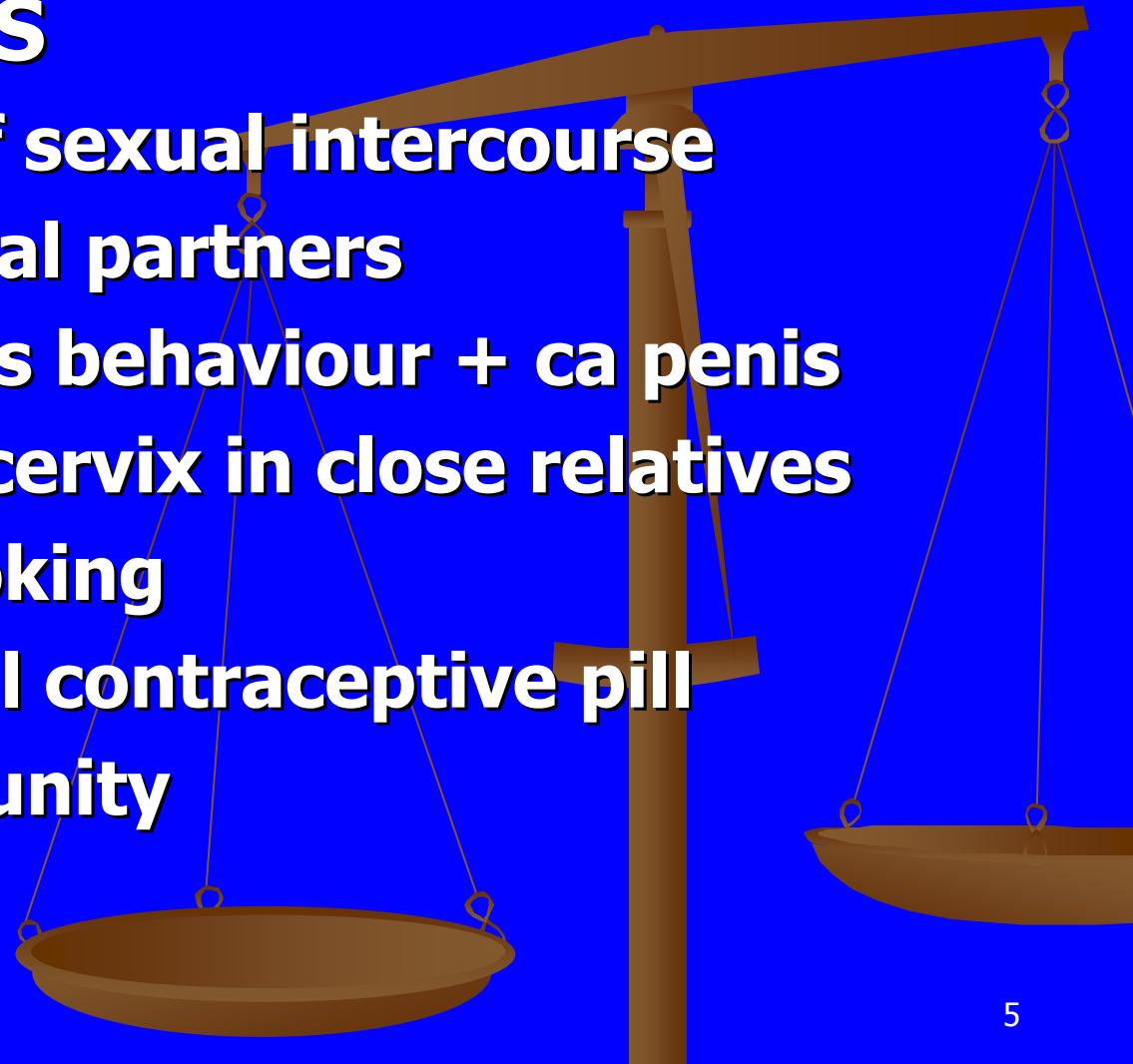
- **ELECTRONIC SEARCH**
- **Pubmed**
- **Medline**
- **Cochrane library**
- **WHO and collaborative institutions -PATH**
- **unpublished literature**



AETIOLOGY OF CA CERVIX

■ RISK FACTORS

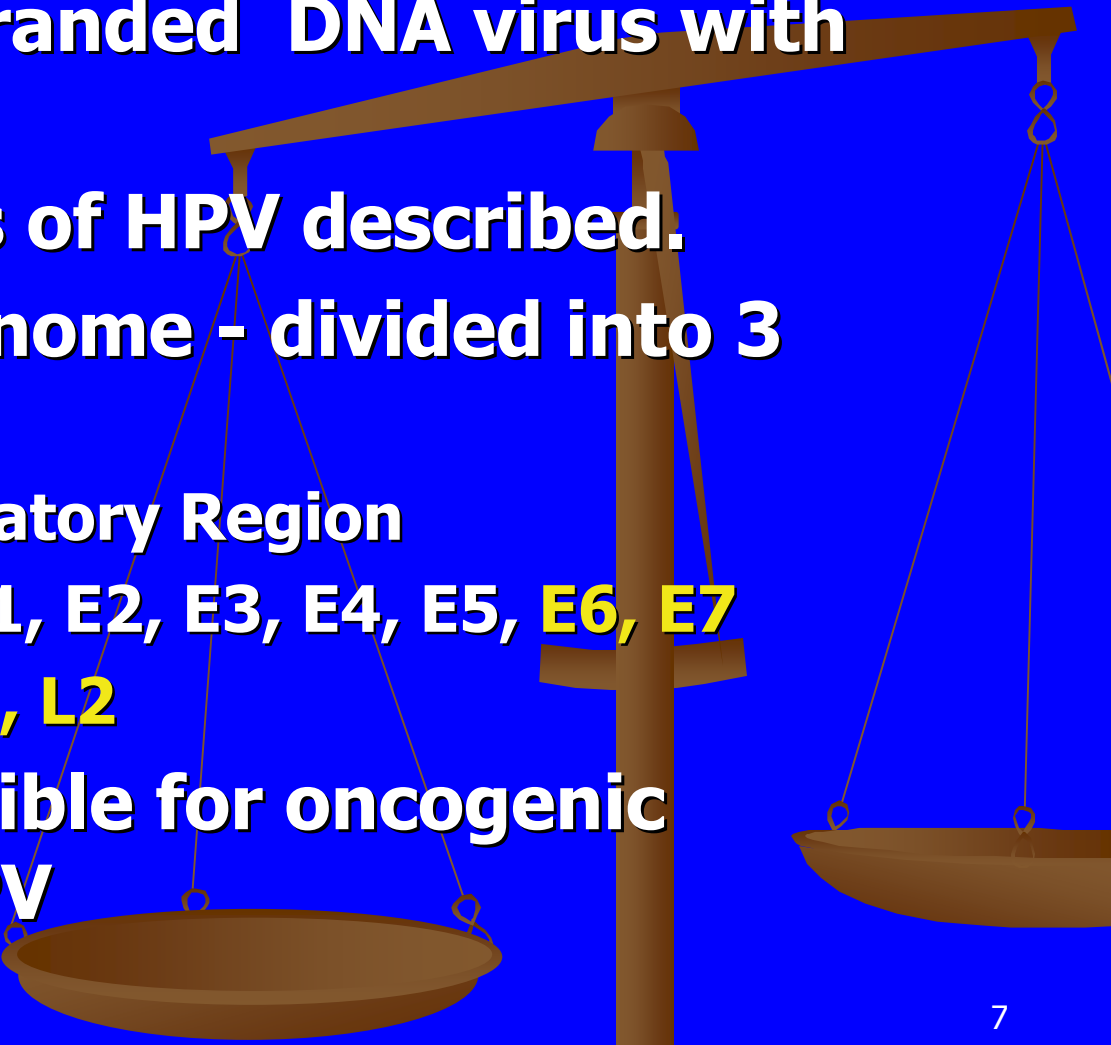
- early onset of sexual intercourse
- multiple sexual partners
- male partner's behaviour + ca penis
- history of ca cervix in close relatives
- cigarette smoking
- combined oral contraceptive pill
- reduced immunity



AETIOLOGY OF CERVICAL CARCINOMA

- Risk factors point to an infectious process
- In the 1970s and early '80s – ?CMV and Herpes Simplex type 2
- Positive association between HPV and ca cervix - HPV 16 identified in 1983
- About 99.7% of Ca cervix associated with HPV infection
- Main oncogenic strains are: types 16 and 18
- Other types: 31, 33, 51, 53, 35 etc.

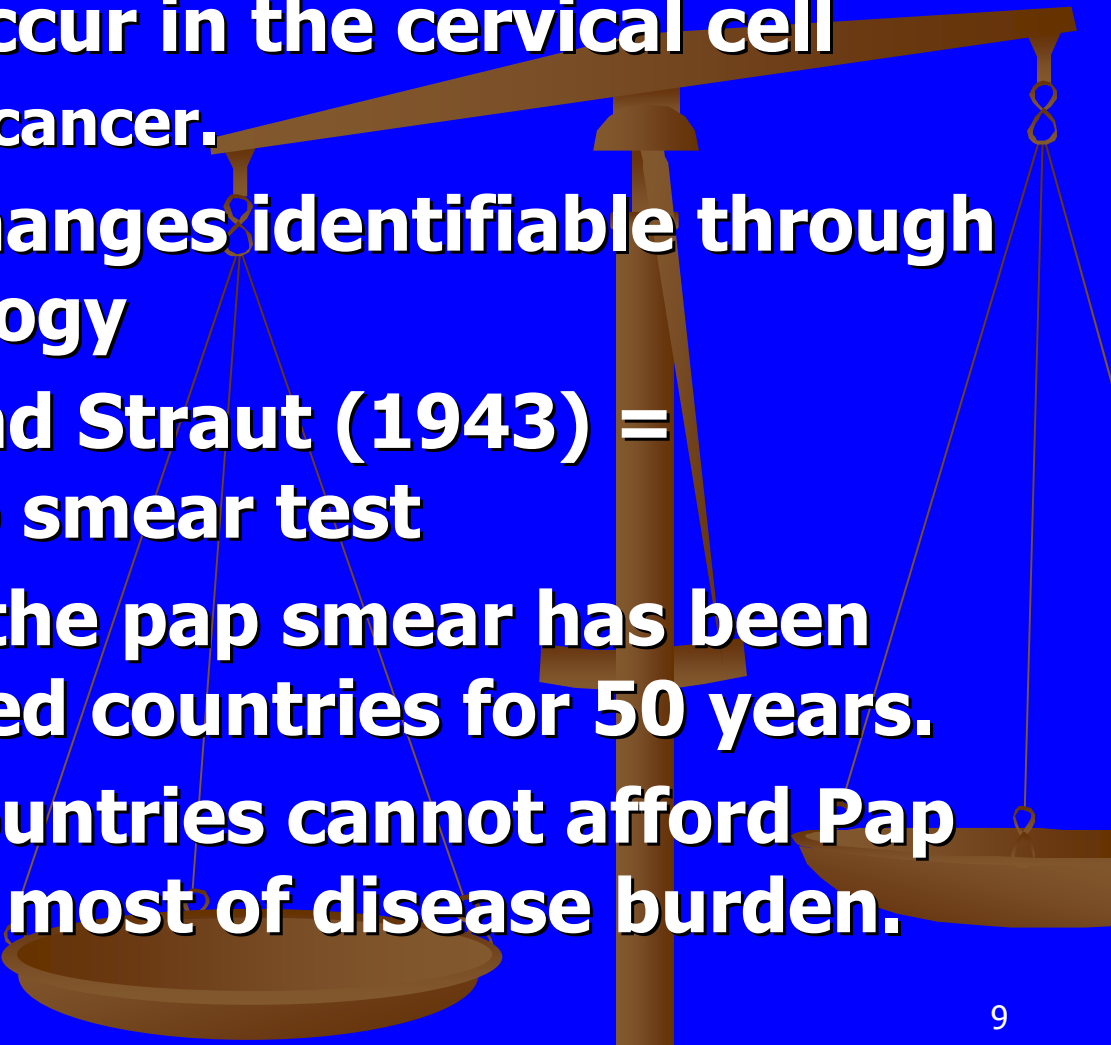
HPV

- **Small double-stranded DNA virus with protein capsid.**
 - **About 120 types of HPV described.**
 - **Circular viral genome - divided into 3 regions.**
 - **Upstream Regulatory Region**
 - **Early Region - E1, E2, E3, E4, E5, E6, E7**
 - **Late Region - L1, L2**
 - **E6 & E7 responsible for oncogenic properties of HPV**
- 

MODE of TRANSMISSION

- Sexually transmitted (~75% sexually active women infected).
- Genital tract micro-trauma enhance viral entry into host cells.
- Virus may live transiently in cervix or may persist according to host factors.
- Persistent infection → cervical changes
 - E6 & E7 proteins block natural control of growth of cervical cells.
 - Integration of viral genome → host cell DNA

CERVICAL CHANGES

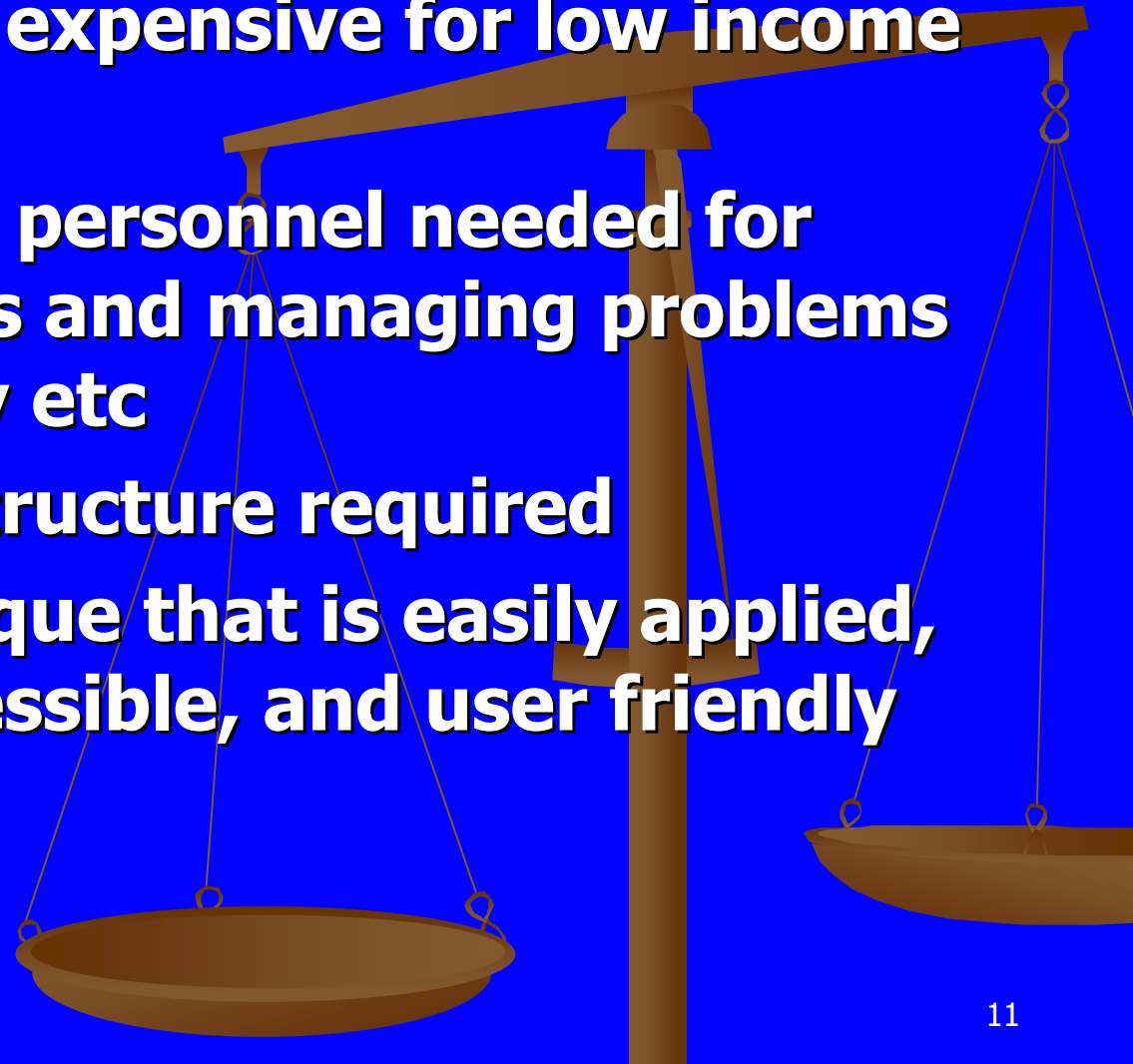
- **Mutation may occur in the cervical cell**
 - →pre-cancer → cancer.
 - **Precancerous changes identifiable through exfoliative cytology**
 - **Papanicolaou and Straut (1943) = Initiation of pap smear test**
 - **Screening with the pap smear has been used in developed countries for 50 years.**
 - **Low resource countries cannot afford Pap smear but carry most of disease burden.**
- 

SCREENING TESTS

- **PAP SMEAR**
- **Cervical specimen taken with spatula / brush and smeared on glass slide for examination.**
- **Sensitivity - 51%**
- **Specificity - 98%**
- **High false negative rate**
- **Liquid-based thin prep available now → better results**
- **Computerised system now available**
- **To improve on cervical precancer detection**
 - **HPV DNA tests (PCR / Hybrid Capture II)**

SCREENING TESTS

- **Pap smear very expensive for low income countries**
- **Highly qualified personnel needed for reading of slides and managing problems with colposcopy etc**
- **Effective infrastructure required**
- **Need for technique that is easily applied, affordable, accessible, and user friendly**



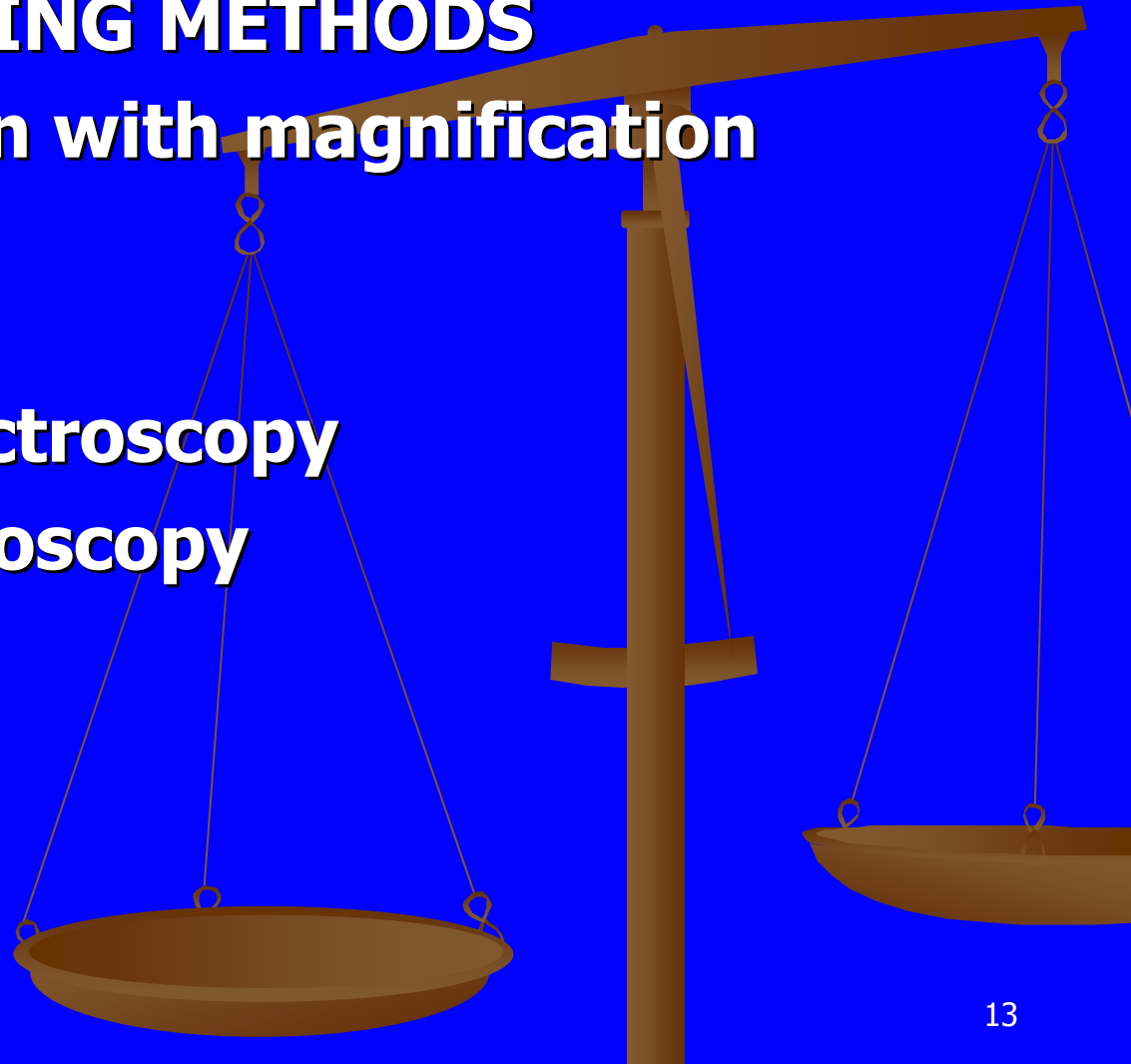
SCREENING TESTS

VISUAL INSPECTION WITH ACETIC ACID (VIA).

- New method under investigation.
- Sensitivity and specificity : 76% / 64%
- Simplicity of use enables wide clinical application
- Treatment for low grade lesions can be done at same visit (cryotherapy)
- Higher grade lesions or cancer referred to hospital

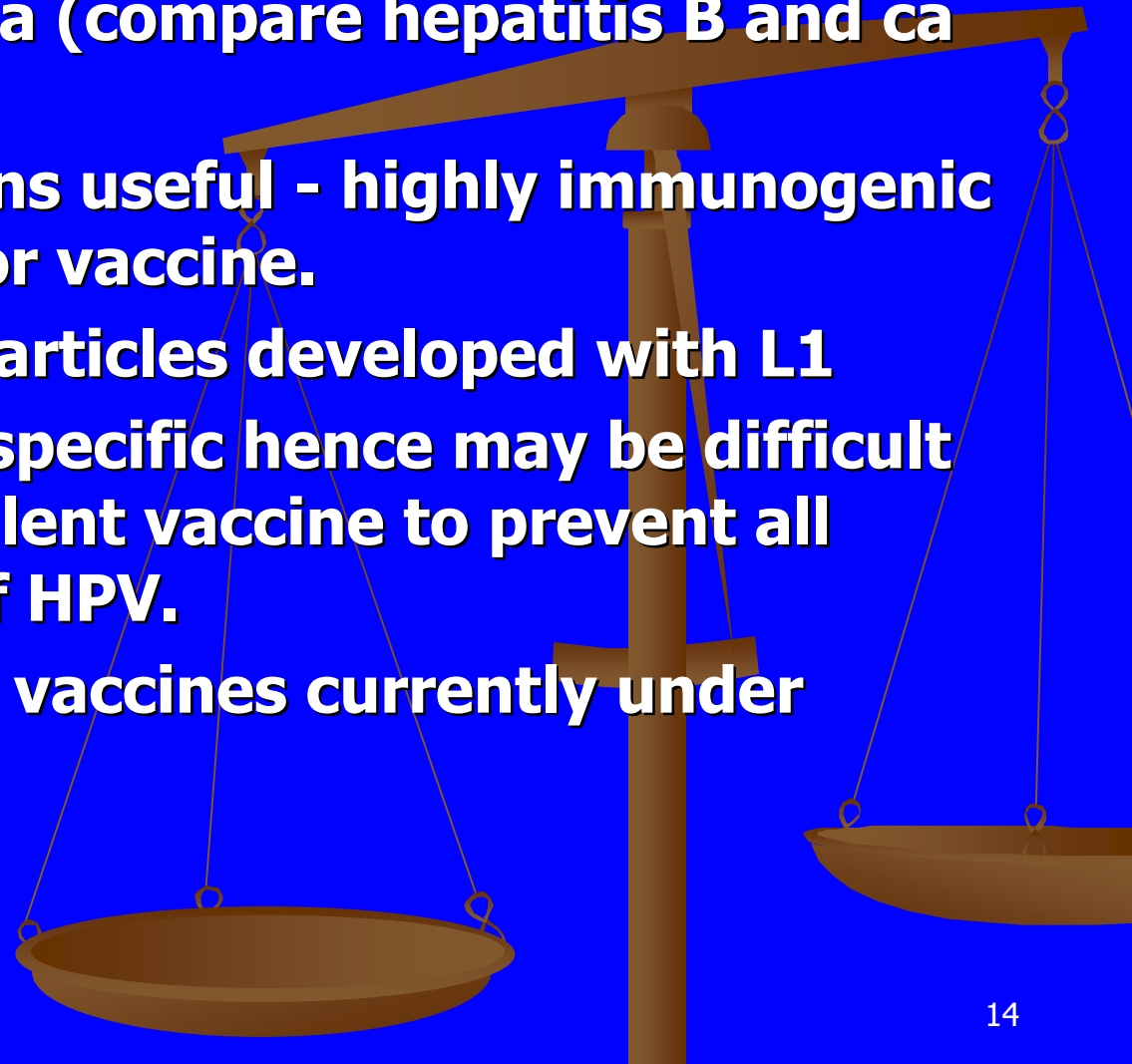
SCREENING TESTS

- **OTHER SCREENING METHODS**
- **visual inspection with magnification (VIAM)**
- **Cervicography**
- **fluorescent spectroscopy**
- **infra-red spectroscopy**
- **polar probe**



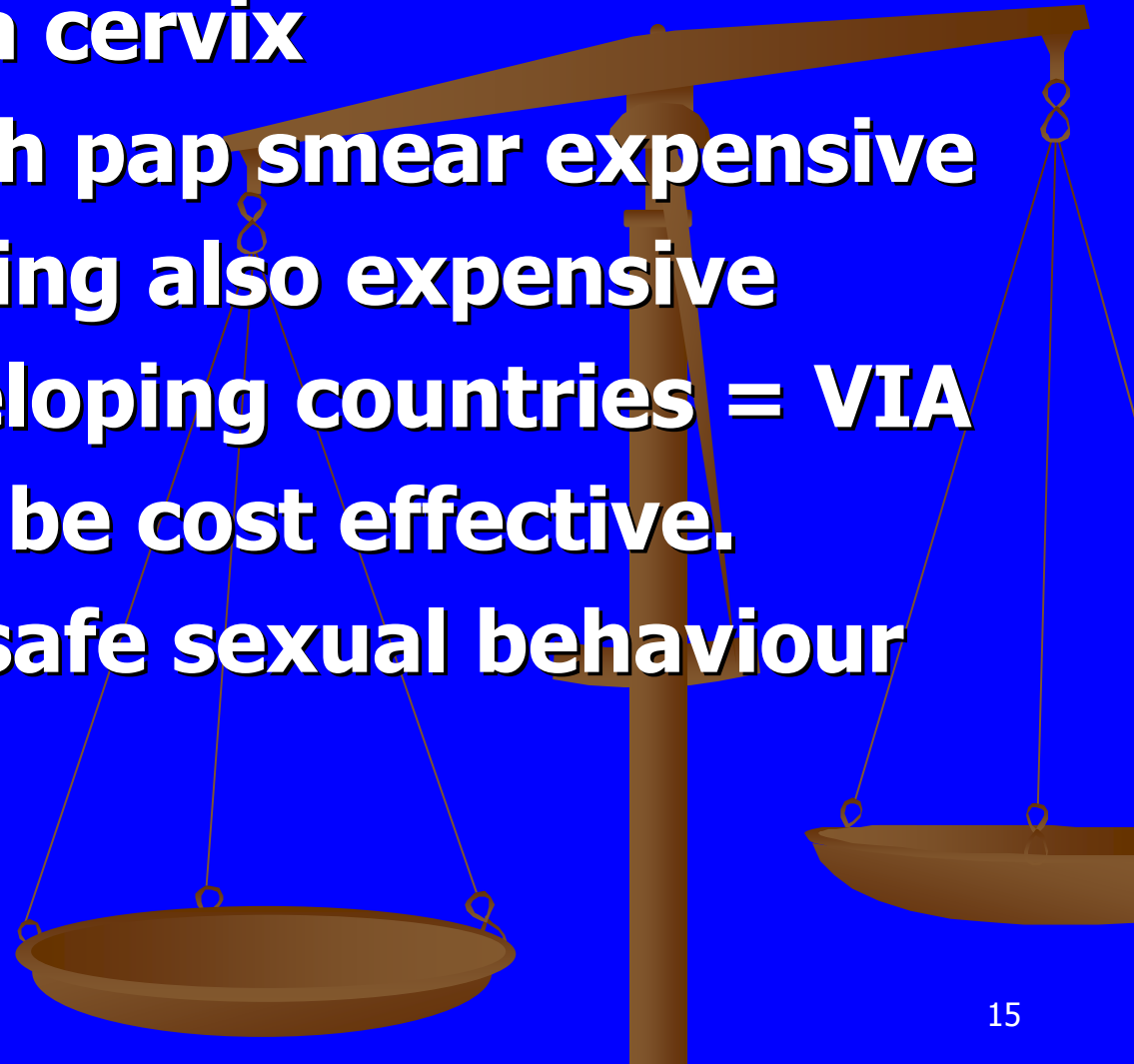
VACCINATION

- **Very attractive idea (compare hepatitis B and ca liver)**
- **Viral capsid proteins useful - highly immunogenic hence prospects for vaccine.**
- **1991 - virus-like particles developed with L1**
- **Immunity is type-specific hence may be difficult to develop poly-valent vaccine to prevent all oncogenic types of HPV.**
- **About 20 different vaccines currently under development**
- **WHO trials**



CONCLUSION

- HPV causes ca cervix
- Screening with pap smear expensive
- HPV DNA testing also expensive
- Hope for developing countries = VIA
- VIA shown to be cost effective.
- Practising of safe sexual behaviour



THANK YOU

- **Geneva Foundation For Medical Education And Research**
- **WHO**
- **UNDP/UNFPA/World Bank**
- **Dept of Health, Canton of Geneva**
- **Geneva University**
- **Geneva Medical Association**
- **IAMANEH**

